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DRIVE TO SAVE METAL AT SOVIET PLANTS;  
MACHINE TOOLS FOR PLANTS. CONSTRUCTION PROJECTS

SUGGESTS USE OF SUBSTITUTES TO SAVE METAL -- Kiev, Pravda Ukrainy, 10 Jan 53

The drive to save metal by decreasing the weight of machines was started by designers at the Novo-Kramatorsk Plant imeni Stalin. Many other plants are now following its example.

The Odessa Radial Drilling Machine Plant, for example, has saved metal on counterbalance weights amounting to 750 kilograms of cast iron per machine tool.

There is a wide variety of ways of decreasing the weight of machines. The amount of metal from which a machine tool is manufactured can be decreased by eliminating excessive safety factors during the designing process. Heavy cast parts as well as hot-rolled parts can and must be replaced by fabricated parts of a lighter type; steel can be replaced by modified and high-strength cast iron; graphitized steel can be introduced as a substitute for nonferrous metals; forgings should be manufactured with minus tolerances; norms for consumption of rolled metal must be decreased by improved laying of patterns; waste ends of rolled section and rolled plate can be better utilized; progressive methods of heating metal, in particular with high-frequency currents, must be used.

One part of a radial drilling machine (the shifting sector) which previously had been manufactured from cast steel by forming, withstood a maximum load of 1,000 kilograms. By casting this part from high-strength cast iron with spherical graphite (s okrugloy formoy grafita), it can withstand a load  $2\frac{1}{2}$  times as great.

The use of modified cast iron for casting internal columns can save more than 100 tons of metal per year at the Odessa Radial Drilling Machine Plant.

A great deal of nonferrous metal has been saved by the use of bimetallic bearings, nuts, and bushings. The replacement of solid bronze rings with bronze rims (venets) fitted on ferrous metal linings (stupitsa) is saving 13 kilograms of tin bronze in each diamond boring machine.

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For further saving of metal, plastics can be used as a substitute for certain metal items. Also, there is the matter of making hollow parts from seamless pipes. For example, at the Odessa Radial Drilling Machine Plant, thick-walled pipes are being used for spindle bushings on one of the series-produced machine tools. This has been very economical.

In the utilization of metal wast, the Podolsk Plant imeni Ordzhonikidze may be noted. There, all metal waste is directed to a special utilizable waste shop for sorting. The Division of the Chief Technologist specifies how the waste is to be utilized and the Planning Division plans the work of the utilizable waste shop. The result is that in one year, more than 150 tons of blanks were manufactured from waste metal.

At the Odessa Machine Tool Building Plant imeni Kirov, designers, technologists, and Stakhanovites, with the active participation of Sukhorukov, director, have studied and successfully utilized the waste from a number of Odessa enterprises. It has been calculated that, from the waste which is utilizable, the Plant imeni Kirov can manufacture parts of at least 120 type-designations, having reduced the yearly requirement for metal by 15 percent.

Of no little importance is the matter of cooperation among industrial enterprises equipped with a large park of press and forging equipment, so that needed parts can be produced for plants not having this equipment. This will reduce the consumption of metal because of the application of more progressive technology.

In the field of tool economy, the machine tool laboratory of the Odessa Radial Drilling Machine Plant is now occupied with the problem of increasing the life of cutting tools by depositing a titanium-cobalt alloy on the cutting edge of the tools by the electric-spark method. -- A. Angelov, chief metallurgist, Odessa Radial Drilling Machine Plant

CHANGE IN DESIGN SAVES METAL -- Moscow, Pravda, 14 Jan 53

Designers at the Kiev Machine Tool Building Plant imeni Gor'kiy, under the direction of Tereshchenko, engineer, have redesigned a number of units of a four-spindle automatic machine tool which will decrease its weight by 3 tons.

DECREASE WEIGHT OF HEAVY LATHE -- Moscow, Pravda, 27 Jan 53

The Ryazan' Machine Tool Building Plant has decreased the weight of a heavy high-speed screw-cutting lathe by 2,300 kilograms. Simplification of the speed shift has improved the quality of the machine tool.

It has been calculated that an additional ten machine tools will be produced from metal saved in one year.

REDESIGN MACHINE TOOLS TO SAVE METAL -- Moscow, Pravda, 3 Feb 53

The Novosibirsk Tyazhstankgidropress Plant imeni Yefremov is now assembling a large planing machine, Model 7256B. This machine has the same technical specifications as a similar machine produced in 1952 except that its weight has been decreased by nearly 3 tons.

The weight of five other types of machine tools produced at the enterprise has also been decreased considerably.

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Previously, many covers and housings on machine tools had been made by casting. Sklyarov, designer, suggested that they be fabricated. The replacement of a cast control panel on a planing machine with a fabricated one decreased the weight of the machine by nearly a half ton. After reviewing the design of a large vertical boring mill, Model 157, Bessol'tsev, designer, was able to decrease the thickness of its columns and cross rails, as a result of which nearly 3 tons of metal can be saved per machine tool.

The plant expects to save approximately 450 tons of metal in 1953.

PLANT IN KAUNAS GETS PLANING MACHINE -- Moscow, Moskovskiy Komsomolets, 13 Jan 53

[A photograph of a planing machine bearing the trademark "NZTSG" (Novosibirsk Tyazhstankogidropress Plant) was reproduced in Moskovskiy Komsomolets on 13 January 1953. According to the caption, it is being assembled at a plant in Kaunas. A parenthetical note indicates that the photograph had been taken from the periodical Sovetskiy Soyuz (Soviet Union), but the date is not given.]

NEW MACHINE TOOLS FOR TURBINE BUILDERS -- Moscow, Trud, 26 Feb 53

The Gor'kiy Machine Tool Plant is manufacturing a machine tool for Leningrad turbine builders. It will perform a complex, labor-consuming operation, that of machining feathers for hydroturbine blades. Although the word "feather" connotes a light-weight object, the feather of a hydroturbine blade weighs several tens of tons. The new machine tool will completely mechanize this labor-consuming operation.

The base of the new machine occupies an area of more than 240 square meters.

A crane carries one part of the machine tool after another to the assembly area. The giant machine will be as high as a two-story home and will be made up of 13,000 parts. Twenty-six electric motors will be installed in it. One push-button on the control panel will put the complex machine into operation.

The plant has also manufactured a machine tool for the Khar'kov electrical machine builders. It will be used to machine grooves in rotors about 3 meters in diameter and more than 12 meters long.

NEW MACHINES FOR METALWORKING PLANTS, CONSTRUCTION PROJECTS -- Kishinev, Sovetskaya Moldaviya, 27 Feb 53

The Kishinev Machinery Plant imeni Kotovskiy has begun production of a new type of sharpening-grinding machine, Model ZM-634, for plants of the metalworking industry. This is the sixth type of product perfected by the plant in the past year.

In a few days, the first group of these machines will be shipped to various cities in the USSR.

At present, the plant is making preparations for the production of a new stone-milling (kamnefrezernyy) machine for milling facing slabs. An experimental model of such a machine has been manufactured for test purposes. The stone-milling machines will be used at construction projects.

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SHIP GRINDING MACHINE TO CONSTRUCTION PROJECT -- Kishinev, Sovetskaya  
Moldaviya, 12 Feb 53

The Khar'kov Machine Tool Building Plant imeni Molotov has shipped a powerful cylindrical grinding machine to the Stalingradgidrostroy. This is the second order that the plant has filled ahead of schedule for the Volga construction project in 1953.

SHIP MACHINE TOOLS TO CONSTRUCTION PROJECTS -- Frunze, Sovetskaya Kirgiziya,  
25 Feb 53

The Moscow Krasnyy Proletariy Plant has manufactured and shipped machine tools to the Kuybyshevgidrostroy and the Stalingradgidrostroy ahead of schedule.

By the end of 1953, it must manufacture another 32 machine tools for construction projects.

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